A LIST OF HESPERIIDÆ FROM BARRO COLORADO ISLAND, CANAL ZONE, AND ADJACENT PANAMA, WITH A DESCRIPTION OF A NEW SPECIES

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The species contained in the following list were collected by the writer during his visit to this region, from October 13 to 23, 1928, and by Mr. C. H. Curran, during the latter part of December 1928, January, and February 1929. A total of 129 species in 79 genera are recorded here; of these one species is described as new, and two species, of which only a single female of each was taken, remain unidentified, but are placed as nearly as possible in their respective genera.

Of the total above mentioned, 76 species in 49 genera were taken on Barro Colorado Island. At the time of the writer's visit to this locality, Hesperiidx were abundant about the Station clearing, especially along the brook and jungle edge, in the banana grove, and on the flowers of the Hibiscus bushes in the rear of the clearing, and in the clearing at the tower on the Wheeler trail; very few, however, were found along the jungle trails; but Mr. Curran reports that during his visit, two to four months later, he found a good many along the trails. This difference is probably accounted for by the different seasons in which the visits were made.

Of the other localities where the writer collected, the banana grove and jungle edge at the rear of the grounds of the Plant Introduction Gardens at Summit, afforded good collecting as well as along the railroad track in the vicinity of the Gardens. At Pedro Miguel the collecting was entirely done on the Chiva Chiva trail. This trail is bordered by thickets and swamps and affords very good collecting. As the vegetation along the sides is very dense a long handled net is necessary when collecting along this trail. At Ft. Amador, the first quarter of a mile of the causeway to the fortified islands yielded very good results,

a few species being taken exclusively in this locality. Tapia Bridge, Panama, is located a little beyond Juan Diaz, and is about fifteen miles from Ancon; near the bridge, and along the roadside, were several flowering bushes which were very attractive to butterflies. All one needed to do, was to stand at one of these bushes and pick out the desirable species as they visited the flowers. The grassy places along the road, and many flowering weeds yielded good results. Old Panama City, Panama, was interesting from its historical associations, and would likely have yielded better collecting results had the vegetation not been recently cleared from the roadsides.

The nomenclature and sequence of the list closely follows that of the "Biologia Centrali-Americana.". Where changes have been necessary, they are noted. The records of distribution are also mainly those of the Biologia, with additions from the collection of the writer, and elsewhere as noted.

The writer wishes to express here, his thanks and sincere appreciation of the many courtesies extended by Mr. and Mrs. James Zetek to Mrs. Bell and himself, which made their visit to the Canal Zone so pleasant and so successful.

Pyrrhopyge phidias Linnæus

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 22, 1928, 3 males, 1 female; Corozal, C. Z., Jan. 16, 1929, 2 males, Feb. 4, 1929, 1 male; Ft. Sherman, C. Z., Feb. 5, 1929, 1 male.

Usually found resting on the upper sides of leaves, especially those of a shiny surface, but occasionally on the under sides of the leaves; in either case they rested with the wings spread at right angles to the body. Sometimes they would dart out of the bushes and fly about the writer's head and the white net, seemingly attracted by the light color of the straw hat and the net; efforts to capture them when doing this were futile, as their flight was extremely rapid; when resting on the leaves they were easily captured.

Distribution: Panama to South Brazil; Trinidad (Kaye).

Pyrrhopyge erythrosticta Godman and Salvin

Barro Colorado Island, C. Z., Feb. 19, 1 male; Ft. Sherman, C. Z., Feb. 5, 1 male.

Although these specimens lack the red spot towards the base of the primaries, on the upper side, they have the narrower dark margin of the secondaries beneath, and it seems probable that they are merely a form, or perhaps race, of *erythrosticta*. The genitalia from one of these specimens does not differ in form from that of a specimen from Chiriqui, Panama, which has the red spots referred to.

Mysoria venezuelæ Scudder

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 22, 1928, 1 female.

This single individual was found resting on the upper side of a leaf, with outspread wings.

Distribution: Mexico to south Brazil; Trinidad (Kaye).

Goniurus simplicius Stoll

Tapia Bridge, Panama, Oct. 15, 1928, 1 male; Old Panama City, Panama, Oct. 16, 1928, 1 male; Patilla Pt., C. Z., Jan. 15, 1929, 1 male.

The *Biologia* uses the genus *Eudamus* for the tailed species, but it has been pointed out by Barnes and McDunnough, and Lindsey, (2) that *Eudamus* falls to *Goniurus*. *Simplicius* is a widely spread and common species, and the few specimens recorded here do not indicate that it was at all scarce in this region, but merely that they were taken for the record only.

Distribution: Texas and Arizona to south Brazil; Trinidad.

Goniurus eurycles Latreille

Barro Colorado Island, C. Z., Oct. 13, 1928, 1 female; Dec. 26, 1928, 1 male; Summit, C. Z., Oct. 17, 1928, 1 female; Corozal, C. Z., Jan. 16, 1929, 1 female.

This species somewhat resembles *simplicius*; flies with it over most of its distribution and the two are often confused; however, the male of *eurycles* lacks the costal fold found in the male of *simplicius* and there are differences in maculation which will readily separate most individuals. The species was in much greater abundance than these few records indicate.

Distribution: Mexico to Argentine; Trinidad. Eurycles has been recorded in the North American fauna, from along the Mexican border, but the record is, perhaps, somewhat doubtful.

Goniurus doryssus Swainson

Barro Colorado Island, C. Z., Feb. 19, 1929, 1 male.

Distribution: Mexico to south Brazil; Trinidad (Kaye, as brachius).

Goniurus carmelita Herrich-Schaffer

Corozal, C. Z., Jan. 9, 1929, 1 male; Ft. Randolph, C. Z., Feb. 6, 1929, 1 male.

These specimens seem to be a form or race of *carmelita* and allied to *nigrocauda* Godman and Salvin, but differ from the description of that insect in the number and position of the subapical spots of the primaries and in the exact extent of the white area of the fringes of the secondaries; that both of these characters are variable is illustrated in the two specimens and the Corozal specimen has a narrow spot near the base of interspace 3, which is lacking in the other one.

Distribution: Panama, Chiriqui, Colombia are recorded in the *Biologia* for *nigrocauda*. Draudt gives Brazil for *carmelita*.

Goniurus cenis Herrich-Schaffer

Old Panama City, Panama, Oct. 16, 1928, 1 female.

Distribution: Panama, Colombia, Venezuela.

Goniurus proteus Linnaeus

Barro Colorado Island, C. Z., Feb. 14, 1929, 1 female; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

Distribution: Southern United States to Argentine and in the Antilles.

Goniurus acawoios Williams

Barro Colorado Island, C. Z., Dec. 23, 1928, 3 males, Jan. 5, 1929, 1 male, Jan. 7, 1929, 1 male.

The form of the genitalia identifies these specimens as the Williams species. Acawoios resembles proteus but the primaries are somewhat narrower and more pointed at the apex, and these specimens are smaller than the general average of proteus. The species was described from British Guiana and is, of course, a new record for the Canal Zone.

Distribution: British Guiana, Panama.

Goniurus huancavilleas Williams

Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

This may be a form of *proteus* Linnaeus, as suggested by Williams (1) in his description.

Distribution: Described from Ecuador.

Goniurus dorantes Stoll

Barro Colorado Island, C. Z., Feb. 16, 1929, 1 female; Patilla Pt., C. Z., Jan. 15, 1929, 1 female; Ft. Amador, C. Z., Oct. 23, 1928, 1 male, 1 female.

This species was also very abundant, the few mentioned here having been taken for the records only.

Distribution: Texas and Arizona south to Argentine; Antilles, in races.

Goniurus ceculus Herrich-Schaffer

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 male.

According to Williams (1) this species was misidentified by Godman and Salvin, who placed it in synonymy with *auginus* Hewitson.

Chioides catillus Cramer

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 1 male, 1 female; Corozal, C. Z., Jan. 21, 1929, 1 male.

Lindsey (1) erected the genus *Chioides* with albofasciatus Hewitson as the type, and states that *catillus* and *albofasciatus* are closely related; also a very abundant species.

Distribution: Panama to Brazil; Trinidad.

Spathilepia clonius Cramer

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20–22, 1928, 3 males.

Distribution: Mexico to south Brazil; Trinidad.

Telegonus talus Cramer

Barro Colorado Island, C. Z., Dec. 23, 1928, 1 female.

Talus is recorded in the Biologia under the genus Goniurus, but Lindsey (2) has pointed out that it is the type of Telegonus as fixed by Butler.

Distribution: Mexico to Brazil; Cuba; Haiti; Porto Rico; Trinidad (Kaye).

Telegonus creteus Cramer

Barro Colorado Island, C. Z., Feb. 14, 1929, 1 male.

Distribution: Mexico to Brazil; Trinidad (Kaye, as parmenides).

Telegonus fulgerator Walch

Barro Colorado Island, C. Z., Dec. 23, 1928, 1 female, Jan. 12, 1929, 1 male.

Fulgerator is placed in the genus Thymele in the Biologia, but Williams (2) has united Telegonus and Thymele, disregarding the secondary sexual characteristics.

Distribution: Mexico to Brazil; Trinidad.

Telegonus egregius Butler

Barro Colorado Island, C. Z., Feb. 16, 1929, 1 male.

A rather small specimen, with a complete discal band on the primaries.

Distribution: Mexico to Colombia.

Telemiades amphion Hubner

Tapia Bridge, Panama, Oct. 15, 1928, 1 male.

Distribution: Mexico to Brazil.

Bungalotis midas Cramer

Ft. Randolph, C. Z., Jan. 23, 1929, 1 male.

Distribution: Honduras to south Brazil: Trinidad (Kaye).

Cecropterus neis Geyer

Barro Colorado Island, C. Z., Jan. 12, 1929, 1 male, Feb. 14, 1929, 2 males, Oct. 13, 1928, 1 male; Corozal, C. Z., Feb. 1, 1929, 1 male; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20–22, 1928, 2 males, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 2 males; Old Panama City, Panama, Oct. 16, 1928, 1 female.

Distribution: Mexico to Brazil; Trinidad (Kaye).

Cecropterus aunus Fabricius

Barro Colorado Island, C. Z., Dec. 23, 1928, 1 female; Patilla Pt., C. Z., Jan. 15, 1929, 1 male; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20–22, 1928, 5 males, 2 females.

Distribution: Mexico to south Brazil; Trinidad.

Cogia calchas Herrich-Schaffer

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 16–20, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 2 males; Old Panama City, Panama, Oct. 16, 1928, 1 male; Ft. Amador, C. Z., Oct. 23, 1928, 1 male; Corozal, C. Z., Jan. 21, 1929, 1 female, Feb. 4, 1929, 2 males, 1 female.

An exceedingly abundant species. Females observed ovipositing on *Mimosa pudica*, the common "sensitive plant."

Distribution: Southern Texas to south Brazil; Trinidad.

Hydrænomia orcinus Felder

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 female.

A single worn specimen was the only one taken.

Distribution: Mexico to south Brazil.

Lignyostola lacydus Druce

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 male.

Distribution: Nicaragua to Peru.

Hyalothyrus neleus Linnaeus

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 female.

Distribution: Nicaragua to Brazil.

Phanus vitreus Cramer

Barro Colorado Island, C. Z., Jan. 5, 1929, 1 male; Feb. 19, 1929, 1 male.

Distribution: Mexico to south Brazil; Trinidad.

Phanus marshalli Kirby

Corozal, C. Z., Feb. 1, 1929, 1 female.

The Biologia places marshalli as a synonym of vitreus Cramer. Distribution: There are specimens from Guatemala; French Guiana; Dutch Guiana; Brazil; Trinidad, in the collection of the writer.

Entheus cramerianus Mabille

Corozal, C. Z., Jan. 19, 1929, 1 female.

The proper association of females in this genus, especially when unaccompanied by males, is often a difficult matter; this specimen, however, agrees with females of *cramerianus* in the collection of the writer. *Cramerianus* is placed in the Biologia in the synonymy of *peleus* Linnaeus.

Distribution: The *Biologia* records Panama to south Brazil for peleus; Draudt gives Guiana for cramerianus.

Quadrus cerialis Cramer

Barro Colorado Island, C. Z., Oct. 19, 1928, 1 female, Dec. 27, 1928, 1 male, Jan. 5, 1929, 1 male.

The genus *Pythonides* is used in the Biologia for *cerialis* and allied species, but Lindsey (2) points out that *Pythonides* must replace *Ate*, as the type is *jovianus* Cramer and erects the genus *Quadrus* to take the place of Pythonides auct.

Distribution: Mexico to south Brazil; Trinidad (Kaye).

Pellicia bromias Godman and Salvin

Corozal, C. Z., Jan. 22, 1929, 1 male.

Distribution: Mexico to Panama; Lindsey (3) adds Peru and Brazil.

Pellicia dimidiata Herrich-Schaffer

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

Recorded in the Biologia as didia Moschler, Draudt includes didia as a synonym of dimidiata.

Distribution: Mexico to Guiana; Trinidad.

Pellicia licisca Plotz

Tapia Bridge, Panama, Oct. 15, 1929, 3 males.

Godman and Salvin record as *thyestes*, which Draudt includes as a synonym of *licisca*.

Distribution: Mexico to Panama; Dr. Lindsey (3) adds Peru.

Mycteris cærulea Mabille

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 female.

The single female is provisionally referred to this species.

Distribution: Guatemala to Columbia.

Echelatus semipternus Butler and Druce

Old Panama City, Panama, Oct. 16, 1928, 1 female.

Distribution: Mexico to Brazil.

Celænorrhinus eligius Cramer

Barro Colorado Island, C. Z., Feb. 19, 1929, 1 male; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 22, 1928, 1 male.

Distribution: Guatemala to Argentine; Trinidad.

Eudamidas ozema Butler

Tapia Bridge, Panama, Oct. 15, 1928, 1 male.

Distribution: Mexico to south Brazil.

Xenophanes tryxus Cramer

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 22, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

Distribution: Texas to south Brazil; Trinidad.

Ouleus fridericus Geyer

Tapio Bridge, Panama, Oct. 15, 1928, 2 males; Summit, C. Z., Oct. 17, 1928, 1 male, 1 female; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20–22, 1928, 2 males.

Biologia records in genus Achlyodes, but Lindsey (2) points out that the type of that genus is busirus Cramer as fixed by Butler and proposes the genus Ouleus to replace Achlyodes Scudder, not Hubner, with fridericus as orthotype.

Distribution: Panama to Brazil; Trinidad.

Sostrata leucorrhoa Godman and Salvin

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 1 male. The form of the genitalia of this specimen is identical with that of Sostrata scintillans Mabille as figured in the Biologia. I use the name leucorrhoa for this specimen, although it is included by Draudt in the synonymy of adamas Herrich-Schaffer.

Distribution: Panama; Colombia; Taboga Island; Trinidad.

Paches loxus Westwood, Doubleday and Hewitson

· Barro Colorado Island, C. Z., Oct. 19, 1928, 2 males, Dec. 19, 1928, 1 male, Dec. 26, 1928, 1 male, Jan. 8, 1929, 1 male; Old Panama City, Panama, Oct. 16, 1928, 2 males; Corozal, C. Z., Jan. 22, 1929, 1 male.

Distribution: Mexico to south Brazil.

Paches subalbata Plotz

Old Panama City, Panama, Oct. 16, 1928, 1 female.

Only this single female taken. Godman and Salvin say that all the specimens known to them are females. This specimen was taken on the flowers of lantana in company with *loxus*, and it seems possible that *subalbata* may be merely a form of the female of that species.

Distribution: Panama to Venezuela.

Pythonides proxenus Godman and Salvin

Barro Colorado Island, C. Z., Dec. 28, 1928, 1 female.

Described in the *Biologia* in the genus *Ate*, but as remarked under *Quadrus*, Lindsey (2) points out that Butler cited *jovianus* as the type of *Pythonides* and Godman and Salvin cite *jovianus* as the type of *Ate*, therefor the two genera are identical and *Pythonides* has priority.

Distribution: Guatemala to Panama.

Pythonides amaryllis Staudinger

Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

Distribution: Guatemala to Ecuador.

Eantis thraso Hubner

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 female, Oct. 19, 1928, 1 male.

Distribution: Texas to Paraguay; Trinidad.

Antigonus nearchus Latreille

Barro Colorado Island, C. Z., Oct. 18, 1928, 1 male, Jan. 7, 1929, 1 male.

Distribution: Mexico to south Brazil; Trinidad.

Bell: Hesperiidæ

Systasea erosus Hubner

Barro Colorado Island, C. Z., Oct. 19, 1928, 1 male; Summit, C. Z., Oct. 17, 1928, 1 male; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 22, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 female; Corozal, C. Z., Feb. 4, 1929, 3 males.

Distribution: Mexico to Paraguay; Trinidad.

Ebrietas undulatus Herrich-Schaffer

Corozal, C. Z., Feb. 4, 1929, 1 male.

This is recorded in the *Biologia* as anacreon Staudinger, but now considered as a synonym of undulatus.

Distribution: Mexico to south Brazil.

Camptopleura thrasybulus Fabricius

Tapia Bridge, Panama, Oct. 15, 1929, 1 male.

Distribution: Mexico to south Brazil; Trinidad (Kaye).

Helias palpalis Latreille

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20–22, 1928, 3 males; Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

Distribution: Panama to Brazil.

Gorgythion begga Prittwitz

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 1 female.

Begga has the anal angle of the secondaries beneath more or less whitish and is often recorded as a form of pyralina Moschler, but as begga was described first, Prittwitz, Stett. Ent. Zeit., p. 198, 1868, it must hold the specific name; pyralina described by Moschler, Verh. z.-b. Ges Wein, p. 343, 1876, without the whitish anal angle area is a form of begga Prittwitz.

Distribution: Panama to Paraguay.

Anisochoria polysticta Mabille

Tapia Bridge, Panama, Oct. 15, 1928, 1 female; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 22, 1928, 2 females; Corozal, C. Z., Feb. 4, 1929, 1 male.

Distribution: Mexico to Guiana; Dr. Lindsey (3) adds Peru.

Staphylus cupreiceps Mabille

Tapia Bridge, Panama, Oct. 15, 1928, 4 males.

Distribution: Mexico to Brazil.

Staphylus aurocapilla Staudinger

Barro Colorado Island, C. Z., Oct. 18, 1928, 2 males, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 3 males, 2 females.

These specimens are referred to aurocapilla although they do not exactly agree with the *Biologia* figures, such slight differences as exist may be due to individual variation.

Distribution: Mexico to Argentine, Trinidad.

Staphylus mazans Reakirt

Barro Colorado Island, C. Z., Oct. 13–18–19, 1928, 3 males, 1 female; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20–22, 1928, 1 male, 2 females; Old Panama City, Panama, Oct. 16, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 male, 3 females.

The *Biologia* records as *ascalaphus* Staudinger, but in the Supplement sinks that name to *mazans* Reakirt.

Distribution: Texas to Venezuela; Trinidad; Dr. Lindsay (3) adds Peru.

Staphylus imbras Godman and Salvin

Barro Colorado Island, C. Z., Oct. 18, 1928, 1 male.

Distribution; Mexico to Panama.

Paramimus stigma Felder

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20–22, 1928, 3 males; Tapia Bridge, Panama, Oct. 15, 1928, 1 female; Corozal, C. Z., Jan. 21–22, 1929, 2 females; Patilla Pt., C. Z., Jan. 15, 1929, 1 female.

Distribution: Panama, Taboga Island, Colombia.

Heliopetes arsalte Linnaeus

Summit, C. Z., Oct. 17, 1928, 1 male; Ft. Amador, C. Z., Oct. 23, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 female; Corozal, C. Z., Jan. 19–21, 1929, 1 male, 1 female, Feb. 4, 1929, 1 male.

Some of these specimens show a tendency toward the form *petrus* Hubner as there is a more or less definite band of white spots included in the darkened apical area of the primaries.

Distribution: Mexico to Paraguay; Trinidad.

Heliopetes alana Reakirt

Barro Colorado Island, C. Z., Oct. 13, 1928, 1 male.

Distribution: Mexico to Paraguay.

Heliopetes macaira Reakirt

Corozal, C. Z., Feb. 4, 1929, 2 males.

Distribution: Arizona and Texas to Panama; Taboga Island.

Heliopetes nivella Mabille

Tapia Bridge, Panama, Oct. 15, 1928, 2 males; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 1 female.

Distribution: Texas to Brazil.

Pyrgus orcus Cramer

Barro Colorado Island, C. Z., Oct. 13, 1928, 5 males, 1 female, Dec. 30, 1928, 1 female; Summit, C. Z., Oct. 17, 1928, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 1 male, 1 female; Patilla Pt., C. Z., Jan. 15, 1929, 5 males.

Placed in the genus *Hesperia* in the *Biologia*; Lindsey (4) fixes *Pyrgus* in place of *Hesperia* auct. *Orcus* is placed by authors as a synonym of *syrichtus* Fabricius, but it is apparently distinct. It is also the *syrichtides* of Reverdin.

Distribution: The writer's records of the distribution of orcus do not show any localities north of the Canal Zone, but extend from there over practically the whole of South America, and in Dominica; St. Lucia (Amer. Mus. of Nat. History); Trinidad; Margarita Island.

Pyrgus notata Blanch

Tapia Bridge, Panama, Oct. 15, 1928, 2 males, 2 females; Old Panama City, Panama, Oct. 16, 1928, 1 female.

Distribution: Mexico to Argentine.

Erynnis gesta Herrich-Schaffer

Ft. Amador, C. Z., Oct. 23, 1928, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 1 male.

Recorded in the *Biologia* in the genus *Chiomara*; Lindsey (1) removes it to *Thanaos*, and Barnes and Benjamin in their List of Diurnal Lepidoptera, Bull. So. Calif. Acad. of Sciences, xxv, part 1, 1926, replace *Thanaos* with *Erynnis*.

Distribution: Mexico to south Brazil; Jamaica; Texas and Arizona.

Apaustus menes Cramer

Barro Colorado Island, C. Z., Oct. 13–18, 1928, 2 males; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 22, 1928, 1 female.

Distribution: Panama to Brazil.

Ancyloxypha xanthina Mabille

Tapia Bridge, Panama, Oct. 15, 1928, 3 males, 2 females.

These specimens very well agree with Mabille's description of xanthina from Valera (Venezuela?) in regard to the maculation, and long wings and palpal third joint, but they do not seem to belong in the genus Ancyloxypha; perhaps the identification may not be correct. They were found only in this one place, a grassy opening along the edge of a swampy thicket; they flew low in among the grasses and weeds and visited the yellow flowers of a small weed, and when they rested on these they were very inconspicuous; the flight is very similar to that of Ancyloxypha numitor Fabricius. From their resemblance to Zariaspes mys Hubner, it is probable that they have been mistaken for that species in collections.

Chærephon citrus Mabille

Ft. Amador, C. Z., Oct. 23, 1928, 7 males, 19 females.

This species was very abundant at the beginning of the causeway to the fortified islands, but was not taken in any other locality visited.

Distribution: Mexico to Panama.

Hylephila phylæus Drury

Summit, C. Z., Oct. 17, 1928, 1 female; Ft. Amador, C. Z., Oct. 23, 1928, 1 male, 3 females; Ft. Randolph, C. Z., Feb. 6, 1929, 1 male.

Distribution: Connecticut to Pacific coast, south through Central and South America to Argentine; Antilles.

Polites vibex Geyer

Ft. Amador, C. Z., Oct. 23, 1928, 4 males, 3 females; Corozal, C. Z., Feb. 4, 1929, 1 male.

Recorded in the Biologia under the genus Thymelicus.

Distribution: New Mexico and Texas through Central and South America to Argentine; Trinidad.

Polites athenion Hubner

Barro Colorado Island, C. Z., Oct. 13–14, 1928, 3 males, Dec. 29, 1928, 1 female; Ft. Amador, C. Z., Oct. 23, 1928, 2 males, 2 females; Summit, C. Z., Oct. 17, 1928, 2 females; Tapia Bridge, Panama, Oct. 15, 1928, 1 male; Ft. Randolph, C. Z., Jan. 23, 1929, 1 male; Corozal, C. Z., Jan. 16, 1929, 1 male, Jan. 19, 1929, 1 male, Feb. 4, 1929, 1 male, 2 females.

Recorded in the *Biologia* in the genus *Thymelicus*. Everywhere the writer collected in the Canal Zone, this species was very abundant.

Distribution: Mexico to Brazil; Trinidad.

Zariaspes mys Hubner

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oet. 20, 1928, 1 male.

Only this single specimen taken.

Distribution: Mexico to Paraguay.

Atrytone species?

Ft. Randolph, C. Z., Feb. 6, 1929, 1 female.

This specimen seems very close to Atrytone gladiolis Dyar, from British Guiana, differing in having less fulvous areas on the wings and not so brightly fulvous on the head and thorax; it may be a dark form of that species. There is a similar unidentified female in the collection of the National Museum.

Calpodes ethlius Cramer

Ft. Amador, C. Z., Oct. 23, 1928, 2 males.

Distribution: Southern United States to Argentine; Antilles.

Prenes sylvicola race fusina Hewitson

Barro Colorado Island, C. Z., Jan. 21, 1929, 1 female.

Recorded in the *Biologia* as a synonym of *Prenes nero* Fabricius. *Fusina* may be a synonym of *sylvicola* Herrich-Schaffer but the writer prefers to retain it for this specimen.

Distribution: There are specimens in the collection of the writer from Dutch Guiana, Bolivia, Argentine and Brazil, as fusina.

Prenes ocola Edwards

Barro Colorado Island, C. Z., Feb. 15, 1929, 1 male.

Distribution: Southern United States; Mexico; Central America; South America to Peru; Trinidad. In the "New York State List of Insects" it is recorded by Davis as having been taken on Staten Island, N. Y., by Capt. R. D. Wainwright.

Prenes vala Mabille

Barro Colorado Island, C. Z., Oct. 13, 1928, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 1 male.

Distribution: Mexico to Brazil.

Aides dysoni Godman

Barro Colorado Island, C. Z., Oct. 18–19, 1928, 5 males, 3 females; Ft. Randolph, C. Z., Jan. 23, 1929, 1 male.

This species was described from a single female from Honduras, in the collection of the British Museum. One of the females closely agrees with the *Biologia* figure; the other two have additional silvery spots on the under surface of the secondaries, illustrating the variability of this character; the males associated with these females have the silvery spots much enlarged and coalescent, forming one very large spot; the stigma is very prominent and formed as in *elara*, the description of which follows that of *dysoni*. All of the Barro Colorado specimens were taken on the flowers of the Hibiscus bushes back of the laboratory, and were usually present in some numbers,

early in the day; they are very swift fliers and dart away with great rapidity when disturbed.

Distribution: Honduras; Panama.

Xeniades pteras Godman

Barro Colorado Island, C. Z., Oct. 18–19, 1928, 2 males. Also taken on the Hibiscus flowers in company with *dysoni*. Distribution: Panama to Venezuela.

Vaccera litana Hewitson

Barro Colorado Island, C. Z., Feb. 14, 1929, 1 male. Distribution: Mexico to Amazons; Trinidad.

Vaccera egla Hewitson

Barro Colorado Island, C. Z., Oct. 13, 1928, 1 male, Dec. 26, 1928, 1 male.

Distribution: Mexico to Panama.

Rhinthon cynea Hewitson

Barro Colorado Island, C. Z., Dec. 29, 1928, 1 male, Jan. 8–12, 1929, 4 males.

Distribution: Mexico to Venezuela.

Rhinthon megalops Godman

Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 22, 1928, 1 female.

Distribution: Mexico to Panama.

Cobalus cannæ Herrich-Schaffer

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 female. Distribution: Mexico to Argentine.

Cobalus fidicula Hewitson

Barro Colorado Island, C. Z., Dec. 29, 1928, 1 female.

This specimen is referred to *fidicula* as it agrees with male specimens, except that it lacks the white spot near the margin of the secondaries above, but is present beneath. It is the only female specimen seen by the writer.

Distribution: Honduras to Panama.

Cobalus viribius Cramer

Barro Colorado Island, C. Z., Jan. 5-6, 1929, 1 male, 1 female, Feb. 16, 1929, 1 male; Corozal, C. Z., Jan. 19, 1929, 1 male.

The *Biologia* does not record this species from the Central American region.

Distribution: Panama to Brazil.

Cobalopsis pelora Plotz

Barro Colorado Island, C. Z., Feb. 14, 1929, 1 male.

Recorded in the *Biologia* as *edda* Mabille, which Draudt includes as a synonym of *pelora*, and which is followed here, perhaps not correctly, as Godman says in his notes on the Plotz species "Probably not the female of *Cobalopsis edda* Mab., as suggested in the Biologia."

Distribution: The *Biologia* gives Mexico to Guiana for *edda*; there are specimens in the collection of the writer from Colombia, Ecuador and Trinidad; Plotz described *pelora* from Brazil.

Morys valerius Moschler

Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 22, 1928, 1 male.

Distribution: Mexico to Brazil.

Perimeles remus Fabricius

Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 20–22, 1928, 1 male, 2 females; Summit, C. Z., Oct. 17, 1928, 2 males; Tapia Bridge, Panama, Oct. 15, 1928, 1 male.

Distribution: Mexico to Brazil.

Tigasis zalates Godman

Barro Colorado Island, C. Z., Feb. 16, 1929, 1 male.

The identification of this specimen is probably correct, but the genitalia have not been examined.

Distribution: Costa Rica to Panama.

Euroto compta Butler

Barro Colorado Island, C. Z., Oct. 18, 1928, 2 males, 1 female, Dec. 22, 1928, 1 male, Jan. 8–10, 1929, 1 male, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

Distribution: Panama to Brazil; Trinidad (Kaye).

Euroto micythus Godman

Tapia Bridge, Panama, Oct. 15, 1928, 2 males.

The *Biologia* records it from Mexico, Costa Rica; Taboga Island, British Guiana, Peru and Brazil are added by Lindsey (3); in the collection of the writer from Trinidad.

Lerema accius Abbot and Smith

Barro Colorado Island, C. Z., Oct. 19, 1928, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 1 female; Summit, C. Z., Oct. 17, 1928, 1 male; Pedro Miguel, C. Z., Oct. 20–22, 1928, 2 males; Ft. Amador, C. Z., Oct. 23, 1928, 3 males.

These specimens lack the variegated appearance on the underside that is found in North American specimens, but the form of the male genitalia is the same.

Distribution: Southern United States to Brazil.

Metron chrysogastra Butler

Barro Colorado Island, C. Z., Jan. 7, 1929, 1 male; Corozal, C. Z., Feb. 4, 1929, 2 males.

This is usually spelled "chrysogaster" but the original spelling is as above.

Distribution: Mexico to Amazons; Trinidad.

Metiscus atheas Godman

Barro Colorado Island, C. Z., Oct. 13, 1928, 1 male.

Distribution: Mexico to Amazons; Trinidad.

Thargella fuliginosa Godman

Barro Colorado Island, C. Z., Jan. 8, 1929, 1 male, Jan. 21, 1929, 1 male, Dec. 26, 1928, 1 female.

Distribution: Nicaragua to Amazons; Trinidad (Kaye).

Mnasitheus simplicissimus Herrich-Schaffer

Barro Colorado Island, C. Z., Dec. 26, 1928, 1 male, Feb. 19, 1929, 1 male; Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 22, 1928, 2 males, 1 female; Summit, C. Z., Oct. 17, 1928, 1 male.

Distribution: Mexico to Brazil; Trinidad.

Mnasitheus zeteki new species, (Fig. 1, male genitalia)

Above. Primaries: immaculate blackish brown, darkened toward the base; veins a little darker than the ground color.

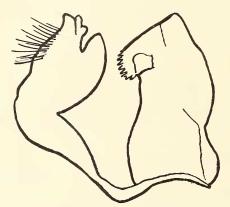
Secondaries: same as the primaries, the costal margin paler than the rest of the wing.

Beneath. Primaries: costal margin and apical area purplish-brown, becoming decidedly purplish at the apex; in and just below the cell, blackish; from vein 2 to the inner margin paler.

Secondaries: purple, except the abdominal fold which is brown.

Thorax and abdomen, above and beneath dark brown. Head, above and beneath, dark brown, with a slight greenish reflection between the antennæ. Palpi, above dark brown, beneath somewhat paler. Legs concolorous with the body. Antennæ a little longer than the cell, with moderate club, apiculus about twice the diameter of the club; black above and beneath, the club paler beneath. Eyes dark brown. Fringes, of primaries above, yellowish-brown at anal angle, growing darker toward the apex; of secondaries, yellowish-brown; beneath, of primaries, brown, darker than the ground color of the wings; of the secondaries, yellowish-brown, a little darker than above. Expanse: 36 mm. (center of thorax × 2)

The stigma is indistinct, except under a lense, and consists of a narrow line beneath vein 2, extending from its base for a little more than two millimeters and another line above vein 1 about four millimeters in length, directly below the upper one.



Described from one male, Barro Colorado Island, C. Z., Oct. 18, 1928; type in collection of the American Museum of Natural History, New York City.

It is with pleasure that this species is named for Mr. James Zetek, of Ancon, Canal Zone.

The stigma corresponds to the form of that of chrysophrys Mabille, from Colombia, mentioned by Godman in the Biologia, in a footnote on page 566, but *zeteki* is a much larger and differently colored insect than the description of *chrysophrys* indicates for that species.

Mnasilus penicillatus Godman

Corozal, C. Z., Feb. 4, 1929, 1 female; Patilla Pt., C. Z., Jan. 15, 1929, 1 female.

Distribution: Mexico to Brazil; Trinidad.

Vehilius illudens Mabille

Barro Colorado Island, C. Z., 3 males, 2 females; Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 22, 1928, 3 males, 1 female; Summit, C. Z., Oct. 17, 1928, 4 males, 2 females; Old Panama City, Panama, Oct. 16, 1928, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 2 males.

An inconspicuous, but very abundant species. The pale, diffuse, discal area of the secondaries beneath varies considerably; in some specimens it is entirely lacking.

Distribution: Mexico to Colombia.

Vehilius scheria Plotz

Barro Colorado Island, C. Z., Jan. 5–6, 1929, 2 males, Feb. 15, 1928, 1 male.

These specimens seem to agree reasonably well with the Draudt figure and text, except the anal angle of the forewing is not "almost whitish"; it is much lighter than the rest of the wing with a small diffuse whitish spot. However, the immaculate, black upper surface of the wings; and beneath, the steely-blue costal and apical half of the primaries, and entire secondaries, except a streak through the abdominal fold, which is brown, with the small but distinct, white, discal and sub-apical spots of the primaries, and curved row of the secondaries, seem to identify fairly well the species; which probably does not belong in this genus.

Distribution: Described from Brazil; Panama; French Guiana.

Vehilius celeus Mabille

Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 22, 1928, 3 males, 1 female.

These specimens are identified by the form of the male genitalia as figured by Dr. Lindsey (3). The species is not mentioned in the *Biologia*, or by Draudt.

Distribution: Lindsey (3) records from Brazil; Panama; Dutch Guiana.

Megistias tripunctata Latreille

Barro Colorado Island, C. Z., Oct. 19, 1928, 2 females; Dec. 19, 1928, 1 male, Dec. 26, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 2 females.

In the *Biologia* the spelling is "tripunctatus" but the original is as above.

Distribution: Mexico to Brazil.

Megistias labdacus Godman

Barro Colorado Island, C. Z., Oct. 13–18, 1928, 3 males; Summit, C. Z., Oct. 17, 1928, 4 males, 3 females; Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 20, 1928, 1 female; Ft. Amador, C. Z., Oct. 23, 1928, 4 males, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 4 males, 1 female.

A small, inconspicuous, low-flying and very abundant species. It is spelled "labdaces" in the explanation of the *Biologia* plate, 101, but as above in the text.

Distribution: Mexico to Dutch Guiana; Trinidad.

Megistias edata Plotz

Pedro Miguel, C. Z., Oct. 20–22, 1928, 4 females; Summit, C. Z., Oct. 17, 1928, 1 female; Old Panama City, Panama, Oct. 16, 1928, 1 female.

This is isus Godman in the Biologia, which Godman sinks to edata Plotz in his notes on the Plotz species.

Distribution: Mexico to Guiana.

Megistias noctis Plotz

Barro Colorado Island, C. Z., Oct. 13–19, 1928, 4 males, 7 females, Jan. 10–21, 1929, 2 males; Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 20–22, 1928, 19 males, 5 females; Summit, C. Z., Oct. 17, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 female; Corozal, C. Z., Feb. 1, 1929, 1 male.

This species is recorded in the *Biologia* as *epiberus* Mabille, which Godman, in his notes on the Plotz species, sinks to the Plotz name, corticea, and further says that noctis Plotz and lysias Plotz are doubtless varieties of the same species. Although Plotz figured these three things in his unpublished drawings in the following order; corticea No. 591; lysias No. 623; noctis No. 1431, he actually published the description of noctis first, Stett. Ent. Zeit, vol. 44, no. 1-3, page 56, 1883; then corticea on the same page, and lysias in the same publication no. 4-6, page 200, therefor, noctis having been published first, has priority over the other two, and holds the name of the species. The name corticea was applied to individuals with a well defined fulvous band on the primaries, noctis to those where this band is greatly reduced or obsolescent, and lysias to an intermediate form, but the names corticea and lysias are hardly worth retaining as the species is exceedingly variable in both size and maculation, even when from the same locality, as noted in the Biologia.

Distribution: Mexico to Brazil; Trinidad.

Megistias tripunctus Herrich-Schaffer

Barro Colorado Island, C. Z., Jan. 21, 1929, 2 females; Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 20–22, 1928, 1 female; Summit, C. Z., Oct. 17, 1928, 4 females; Tapia Bridge, Panama, Oct. 15, 1928, 1 female; Old Panama City, Panama, Oct. 16, 1928, 1 female; Patilla Pt., C. Z., Jan. 15, 1929, 1 female.

This species is not recorded in the *Biologia* from the Central American region.

Distribution: Panama; Dutch Guiana; Cuba; Jamaica; Dr. Lindsey (3) records Peru and Brazil; Skinner and Williams, Florida.

Vorates decorus Herrich-Schaffer

Barro Colorado Island, C. Z., Dec. 23, 1928, 1 male; Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 20, 1928, 1 male.

Distribution: Mexico to Brazil; Trinidad (Kaye).

Padraona epictetus Fabricius

Barro Colorado Island, C. Z., Oct. 19, 1928, 1 male, Dec. 26–28, 1928, 2 males, Jan. 4, 1929, 1 male, Feb. 16, 1929, 1 male; Pedro Miguel, C. Z. (Chiva Chiva Trail), Oct. 22, 1928, 2 males; Corozal, C. Z., Jan. 19, 1929, 1 male.

Distribution: Mexico to Paraguay.

Zenis calvina form dissoluta Plotz

Barro Colorado Island, C. Z., Jan. 6, 1929, 1 male.

This specimen seems to agree reasonably well with the Draudt figure and also with a single specimen in the collection of the writer, from Bolivia, however, there does not seem to be the hair-pencil or fold in which it lies, under vein 2 of the primaries, which Godman states is one of the characteristics of the genus. The identification may not be correct.

Distribution: Draudt gives for valvina: Bahia; Para.

Cœliades fiscella Hewitson

Barro Colorado Island, C. Z., Jan. 12, 1929, 1 male.

Distribution: Nicaragua to Amazons.

Flaccilla subrufescens Schaus

Barro Colorado Island, C. Z., Feb. 14, 1929, 1 male, 1 female, Jan. 8, 1929, 1 female.

This species was originally described in the genus *Carystus* but is placed in the National Collection in *Flaccilla*, with which it more nearly coincides in the form of the stigma in the male.

Distribution: Costa Rica; Panama.

Godmania silius Latreille

Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 1 male; Tapia Bridge, Panama, Oct. 15, 1928, 1 female.

Recorded in the *Biologia* in the genus *Cymænes*; Skinner and Ramsden, Proc. Acad. of Nat. Sciences, Phila., lxxv, page 321, 1923, propose the genus *Godmania* to replace *Cymænes* auct.; as the type of *Cymænes* Scudder is *Cobalus tripunctus* Herrich-Schaffer.

Distribution: Mexico to Brazil.

Godmania lunata race silene Plotz

Barro Colorado Island, C. Z., Oct. 13, 1928, 1 male, Dec. 22, 1928, 1 female, Jan. 6, 1929, 1 female, Jan. 21, 1929, 1 male.

Recorded in the *Biologia* as *Cymænes berus* Mabille, but Godman states in his notes on the Plotz species that *lunata* Plotz and silene Plotz both equal berus Mabille, the Plotz names having priority. An examination of the genitalia of one of the male specimens shows that it agrees with the *Biologia* figure of that of berus. The male specimens have the fulvous areas of the wings more reduced than the figure of berus, and as Draudt places silene as a form of lunata with reduced maculation these specimens are referred to that form. Two females associated with the males agree with the characters pointed out by Godman to separate this sex of lunata from silius and malitiosa females.

Distribution: Recorded from Costa Rica; Panama; Colombia; Brazil.

Methionopsis ina Plotz

Barro Colorado Island, C. Z., Dec. 28, 1928, 1 female, Feb. 6, 1929, 1 male.

Recorded in the *Biologia* as *modestus* Godman, but Godman sinks *modestus* to *ina* Plotz, in his notes on the Plotz species.

Distribution: Mexico to Brazil; Trinidad.

Methionopsis typhon Godman

Barro Colorado Island, C. Z., Feb. 21, 1929, 1 male.

Distribution: Guatemala to Panama.

Eprius veleda Godman

Corozal, C. Z., Jan. 19, 1929, 1 male.

This genus was originally spelled "Epeus" but changed to Eprius in the Supplement.

Distribution: Mexico to Panama; Trinidad (Kaye).

Callimormus juventus Scudder

Corozal, C. Z., Jan. 22, 1929, 1 male.

Distribution: Mexico to Brazil.

Callimormus gracilis Felder

Barro Colorado Island, C. Z., Oct. 18–19, 1928, 3 males, Dec. 22–29, 1928, 3 males, 2 females, Jan. 10, 1929, 2 males.

A small, low-flying species.

Distribution: Mexico to Venezuela; Lindsey (3) adds Peru; Trinidad.

Callimormus corades Felder

Barro Colorado Island, C. Z., Oct. 14, 1928, 1 male; Pedro Miguel, C. Z., (Chiva Chiva Trail), Oct. 20, 1928, 2 males; Ft. Amador, C. Z., Oct. 23, 1928, 1 male; Summit, C. Z., Oct. 17, 1928, 2 males, 1 female; Tapia Bridge, Panama, Oct. 15, 1928, 1 male.

Distribution: Mexico to Brazil; Trinidad.

Mnestheus ludens Mabille

Barro Colorado Island, C. Z., Jan. 7, 1929, 1 male, Feb. 15, 1929, 1 male.

Distribution: Panama to Venezuela.

Mnestheus species?

Barro Colorado Island, C. Z., Dec. 23, 1928, 1 female.

The writer is unable to identify this specimen, and in the absence of a male the generic affinity is uncertain, it is tentatively placed in this genus on the general characteristics.

Orses seneca Latreille

Barro Colorado Island, C. Z., Dec. 26, 1928, 1 female; Corozal, C. Z., Jan. 21, 1929, 1 female.

These specimens closely agree with a specimen from Paraguay in the collection of the writer. Godman does not record the species from the Central American region but mentions it in a footnote, as *cotona* Hewitson. Draudt places *crotona* Hewitson in the genus *Perichares*, but Riley puts it in *Orses* as a synonym of *seneca*, and that course is followed here.

Distribution: Panama to Brazil.

Thracides luda Hewitson

Barro Colorado Island, C. Z., Oct. 18, 1928, 1 female, Jan. 6, 1929, 1 female.

Distribution: Honduras to Guiana.

Thracides aroma Hewitson

Corozal, C. Z., Jan. 19, 1929, 1 male. Distribution: Costa Rica to Amazons.

Thracides salius Cramer

Barro Colorado Island, C. Z., Jan. 5, 1929, 1 female.

Distribution: Mexico to Argentine.

Thracides telegonus Hubner

Barro Colorado Island, C. Z., Oct. 19, 1928, 1 male.

Telegonus Hubner is sometimes placed as a synonym of longirostris Sepp, but Riley has pointed out certain differences.

Distribution: in writer's collection from Panama, French Guiana, Bolivia, Trinidad.

Thracides antoninus Latreille

Barro Colorado Island, C. Z., Jan. 8, 1929, 1 female.

The remarks under telegonus also apply to this species.

Distribution: in collection of the writer from French Guiana, Bolivia, Ecuador, Trinidad, Panama.

Perichares coridon Fabricius

Barro Colorado Island, C. Z., Oct. 18, 1928, 1 female, Dec. 25, 1928, 1 male.

Distribution: Mexico to Brazil; Antilles.

BIBLIOGRAPHY

BARNES AND McDunnough, Contributions, iii, 2, 1916.

BUTLER, Ent. Monthly Mag., vii, 1870.

DRAUDT, Seitz, Macrolep. of the World, vol. v, American Fauna.

GODMAN AND SALVIN, Biol. Centrali-Americana, ii.

GODMAN, Annals and Mag. of Nat. History, ser. 7, xx, 1907.

KAYE, A Catalogue of the Trinidad Lepidoptera Rhopalocera; Memoirs of the Dept. of Agric., Trinidad and Tobago.

LINDSEY (1), Univ. of Iowa Studies, ix, no. 4, 1921.

LINDSEY (2), Annals Ent. Soc. of Amer., xviii, i, 1925.

LINDSEY (3), Denison Univ. Bull., xxi, 1925.

LINDSEY (4), Ent. News, xxxix, 1928.

RILEY, Trans. Ent. Soc., London, Dec., 1926.

SHEPARD, Ent. News, xl, no. 7, 1929.

SKINNER AND WILLIAMS, Trans. Amer. Ent. Soc., xlix, 1923.

WILLIAMS (1), Trans. Amer. Ent. Soc., lii, 1926.

WILLIAMS (2), Trans. Amer. Ent. Soc., liii, 1927.